



# TP-LINK®

## User Guide

### TL-SL2109

### 8+1G Gigabit Ethernet Smart Switch



## **COPYRIGHT & TRADEMARKS**

Specifications are subject to change without notice. **TP-LINK**<sup>®</sup> is a registered trademark of TP-LINK Technologies Co., Ltd. Other brands and product names are trademarks or registered trademarks of their respective holders.

No part of the specifications may be reproduced in any form or by any means or used to make any derivative such as translation, transformation, or adaptation without permission from TP-LINK Technologies Co., Ltd. Copyright © 2005 TP-LINK Technologies Co., Ltd. All rights reserved.

## **SAFETY NOTICES**

### **Caution:**

Do not use this product near water, for example, in a wet basement or near a swimming pool.

Avoid using this product during an electrical storm. There may be a remote risk of electric shock from lightning.

Package Contents.....	1
Chapter 1: About the Guide.....	2
1.1 Purpose.....	2
1.2 Terms and usage.....	2
1.3 Overview of the Guide.....	2
Chapter 2: Introduction of the Product .....	3
2.1 Port-Trunking function.....	3
2.2 Virtual Local Area Network.....	3
2.3 Priority.....	3
2.4 Main features .....	4
Chapter 3: Installation .....	5
3.1 Installation.....	5
3.1.1 Installation on the desktop .....	5
3.1.2 Rack Installation.....	5
3.1.3 Hang on the wall .....	6
3.1.4 Power on.....	6
3.1.5 Initialization .....	6
3.2 Explanation of switch appearance and the method of connecting switch .....	7
3.2.1 Front Panel .....	7
3.2.2 Rear Panel.....	7
3.2.3 LED indicators .....	7
3.3 Connection.....	8
Chapter 4: Installation and Usage of the Software.....	9
4.1 The steps of the installation of GSSC (Gigabit Smart Switch Configuration).....	9
4.2 The Usage of GSSC .....	10
4.3 Port Configuration .....	14
4.4 PortClose Setting .....	16
4.5 TRUNK Setting .....	18
4.6 VLAN.....	20
4.7 Priority over ToS and VLAN Tag.....	22
4.8 The effect of the configuration.....	23
4.9 Save and Open the configuration.....	24
Appendix A: Technical Specifications .....	26
Environmental and Physical.....	26
Appendix B: Contact Information.....	27

## Package Contents

The following contents should be found in your box:

- One TL-SL2109 Switch
- One power cord
- One serial cable
- This User's Guide
- One Resource CD
- Rubber footpads for Desk-mount
- Rack-mount kit for installing the switch in a 19-inch rack

**Note:** If any of the above contents is damaged or missing, please contact the retailer from whom you purchased the TL-SL2109 Switch for assistance.

## **Chapter 1: About the Guide**

Thank you for purchase of TL-SL2109 8+1G Gigabit Ethernet Smart Switch. The TL-SL2109 supports TRUNK, VLAN and port configuration. With the features of high performance, easy to use and economical, the TL-SL2109 is one best choice for you.

### **1.1 Purpose**

The right guide is about to help you use the model of TL-SL2109 Gigabit Smart Switch accurately.

### **1.2 Terms and usage**

In simple word, this guide uses the terms “Switch” (first letter upper case) to refer to the model of TL-SL2109 8+1G Gigabit Smart Switch, and “switch” (first letter lower case) to refer to all Ethernet switch, including the model of TL-SL2109 naturally.

### **1.3 Overview of the Guide**

Chapter 1: About the guide.

Chapter 2: Introduction. Describes the Switch and its features.

Chapter 3: Installation. Helps you get started with the basic installation of the Switch.

Chapter 4: Install and usage of GSSC. Describe how to configure the Switch by GSSC.

Appendix A: Technical Specifications. Lists the technical (general, environmental and physical) specifications of the Switch.

Appendix B: Twisted-Pair Cabling.

## Chapter 2: Introduction of the Product

This part simply describes the features of the model of TL-SL2109 Gigabit Smart Switch, and some information in context about the technology of Switch.

### 2.1 Port-Trunking function

Basically, TRUNK permits to provide a wider bandwidth between the switches by two or more than two ports (less than four ports generally) working side by side. It means that the TRUNK solves many physical ports as one logical port. When there is no TRUNK, the maximal bandwidth is decided by Auto-negotiation. The good of the TRUNK is that you can use many lower speed devices as a higher speed device. Using the TRUNK, you can only add the adapters in the server machine connected to the switch to solve the traffic between the switch and the server. You also can use the switch to solve the traffic between the switch and the server. You also can use the TRUNK between the switches to solve the traffic.

TL-SL2109's TRUNK function supports one TRUNK, which is made up of the seventh and the eighth port, the TRUNK port's bandwidth can get to 400Mbps.

### 2.2 Virtual Local Area Network

The Virtual Local Area Network can be out of the constraints of the physical connections. You can move the workstations among the workgroup and the subnet without changing the physical connection. The work stations build up the logical workgroup or the virtual subnet to improve the performance of the system. Poise the flux in the network and utilize the source of the device reasonably. In the same time, the VLAN decompresses the management and maintenance of the network.

- **Virtual Group:** The members of the groups' communication with each other will be greatly improved. And not required the router in the system.
- **Safety:** Because only the legal user can forward the information, the safety of the network will be improved.
- **Economize cost:** You can use VLAN in the network without adding the router or re-distributing the cable.

Port-based VLAN is the usual technology of the TL-SL2109. The TL-SL2109P supplies nine Port-based VLAN.

### 2.3 Priority

The TL-SL2109 supplies the port-based priority. The Switch had two levels, low and high. The switch forwards the frames based on the level of the priority. The frames with high level priority can be solved firstly.

## 2.4 Main features

- Complies with IEEE 802.3、IEEE 802.3ab
- 8 10/100Mbps Auto-Negotiation RJ45 ports supporting Auto-MDI/MDIX
- 1 10/100/1000Mbps Auto-Negotiation RJ45 ports supporting Auto-MDI/MDIX
- Supports IEEE802.3x flow control for Full Duplex mode and backpressure for half-duplex mode
- Supports port-based VLAN with 9 entries
- Supports TRUNK
- Supports Port Enable/Disable
- Supports Static Port Priority with 2-level priority queuing
- 1 console port supporting configured software setting
- Desktop or rack-mountable steel case
- Internal power supply

## Chapter 3: Installation

### 3.1 Installation

Firstly, please place the switch following the steps:

- The surface must support at least 5kg;
- The power source must be within 1.5m;
- Check the power cable carefully to make sure the connection to AC power;
- Leave enough space for the ventilation.

#### 3.1.1 Installation on the desktop

1. Place the Switch on a desk which has enough space;
2. Take off the four pads' adhesive tape and adhere to the four circle grooves on the bottom of the switch respectively;
3. Turn off the switch again, place on the desktop.

#### 3.1.2 Rack Installation

The TL-SL2109 can be mounting in an EIA Standard size 19 inches rack.

1. Attach the mounting brackets to each side of the TL-SL2109 with the screws;
2. Slide the TL-SL2109 into the rack;
3. Use the screws to secure the switch to the rack..

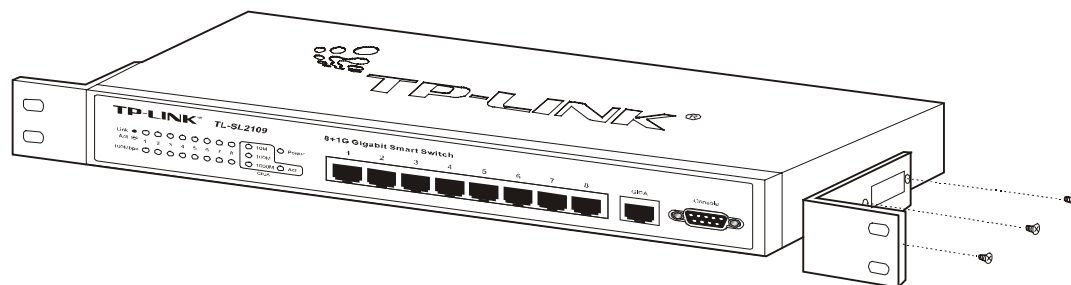


Figure 3-1 Rivet the “L” brackets onto the Switch



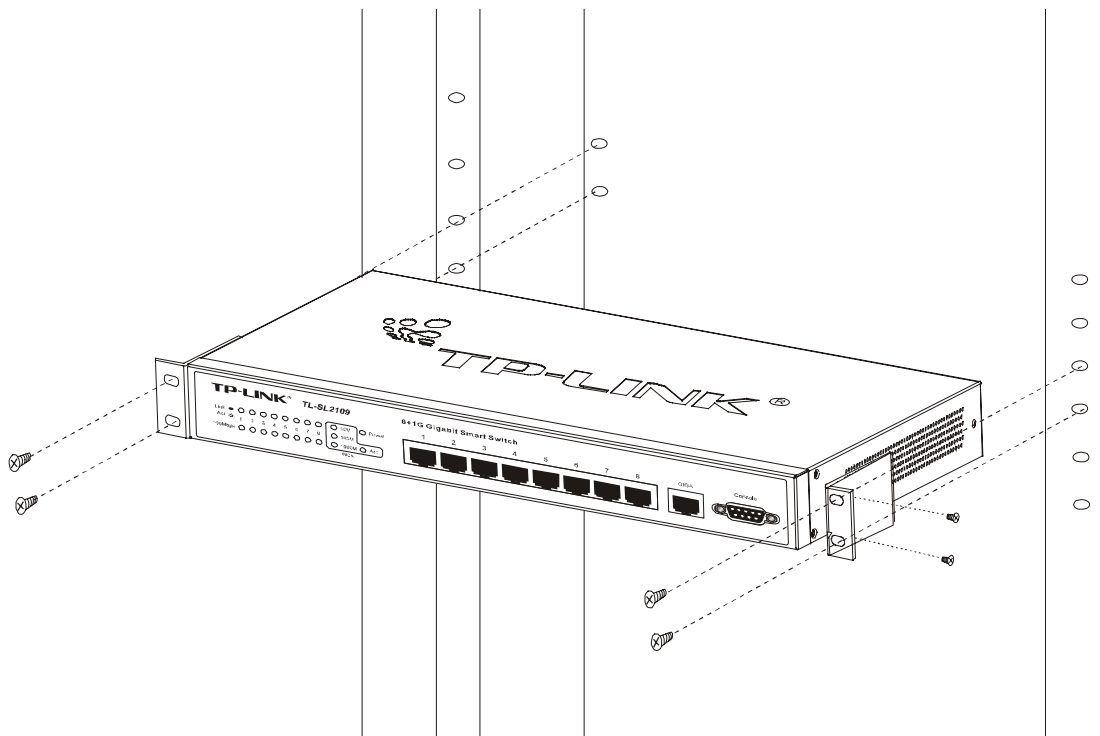


Figure 3-2 Fasten the Switch in the rack

### 3.1.3 Hang on the wall

The TL-SL2109 can be hung on the wall.

1. Drill two holes with a 6mm diameter on the wall, the distance between the holes is 160mm.
2. Press the plastic tube in the hole entirely, then put screws in the plastic tubes, screw them with a few body stuck out the wall;
3. Place the switch to the two screws by the holes in the switch.

### 3.1.4 Power on

The TL-SL2109 can be used with the power source in the range of 110 to 260 VAC, 50-60Hz. After the power is on, the power LED will be light.

**Caution:** As a precaution in the event of a power failure, unplug the switch, when the power resumed, plug the switch back in.

### 3.1.5 Initialization

Turn on the power, the switch will automatically initialize and the LEDs, will be light as follows:

1. As the time you turn on the power, the LEDs will turn on for a second, which indicates system resetting.
2. The power LED is always light.

## 3.2 Explanation of switch appearance and the method of connecting switch

The part gives you more details about front panel, rear panel, LEDs and extension port of the switch.

### 3.2.1 Front Panel

There are 8 10/100Mbps ports and LED indicators, 1 10/100/1000Mbps port and LED indicator, 1 serial port on the front panel of the TL-SL2109.

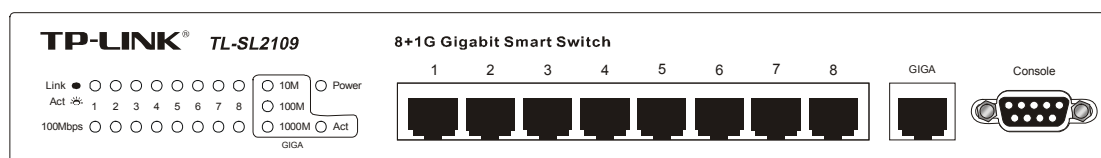


Fig 3.2 Front Panel of the TL-SL2109

### 3.2.2 Rear Panel

There is a power connector on the rear panel. The power supply is 100V-240V, 50-60Hz.

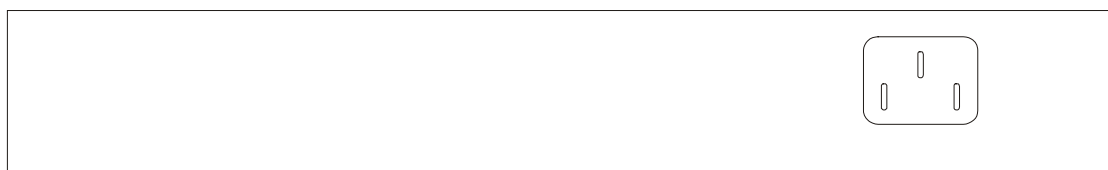


Fig 3.3 Rear Panel

### 3.2.3 LED indicators

10/100Mbps ports' LED includes Link/Act and 100Mbps speed, gigabit port includes 10M speed, 100M speed, 1000M speed and Act. There also is a power LED. By these LEDs, you can monitor the working state of the switch easily. More details as follows:

- **Power LED:** The power LED will be always red when power on, or else check the power connection.
- **Link/Act:** The LED is green when there is a secure connection to a device at any of the 10/100M ports. It will be lit when transferring or receiving packages.
- **10M LED:** The LED is green when the gigabit port connects to a 10Mbps device, or else it will turn off.
- **100M LED:** The LED is green when the gigabit port connects to a 100Mbps device, or else it will turn off.
- **1000M LED:** The LED is green when the gigabit port connects to a 1000Mbps device, or else it will turn off.

- **Act LED:** The LED is lit when the gigabit port are transferring or receiving the packages.

### 3.3 Connection

The TL-SL2109 supports MDI/MDIX, so you can use every port as a normal port or an uplink port. Each port is independent, which makes the connection very easy.

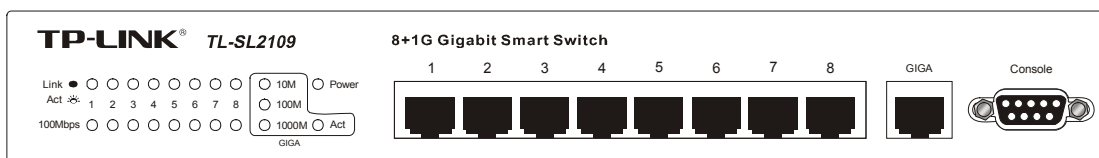


Figure 3-1 TL-SL2109 Switch Front Panel sketch



Figure 3-2 TL-SL2109 Switch Rear Panel sketch

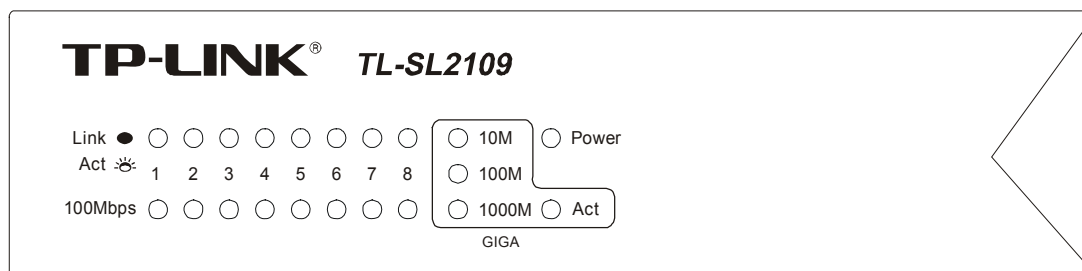


Figure 3-3 TL-SL2109 Switch LEDs sketch

## Chapter 4: Installation and Usage of the Software

The TL-SL2109 is a smart switch. You can configure it with the management software provided by us. It makes you every convenient to manage the switch. The part helps you to use it.

### 4.1 The steps of the installation of GSSC (Gigabit Smart Switch Configuration)

The software is running in windows (95/98/2000/NT). You can use it by a serial cable connected to the PC. So before your configuration, you should have a computer with the certain operating system and a serial port. The installation steps are as follows:

1. Connect the serial cable between the PC and the Switch;
2. Run the PC and the Switch;
3. Run the setup.exe in the software package, and click Next to finish the installation, The default path is "C:\Program Files\TP-LINK\Giga Smart Switch Configuration 1.0". If you want to change the path, click the "Browse" button.

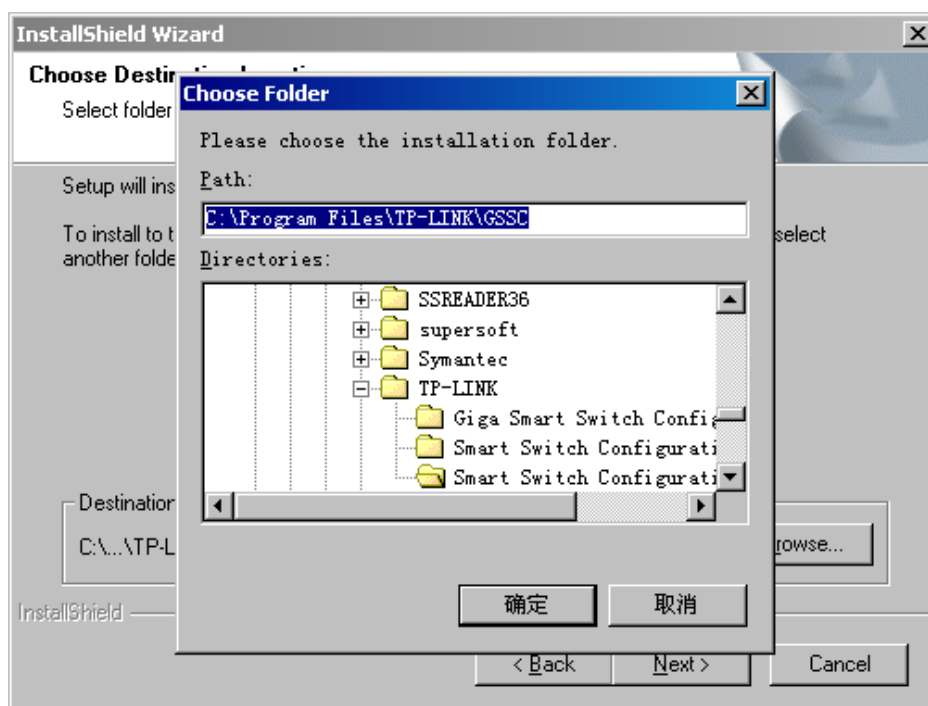


Fig 4.1 The installation path changing

4. Input your new path, such as "D:\Switch\TP-LINK\GSSC", then click "OK".

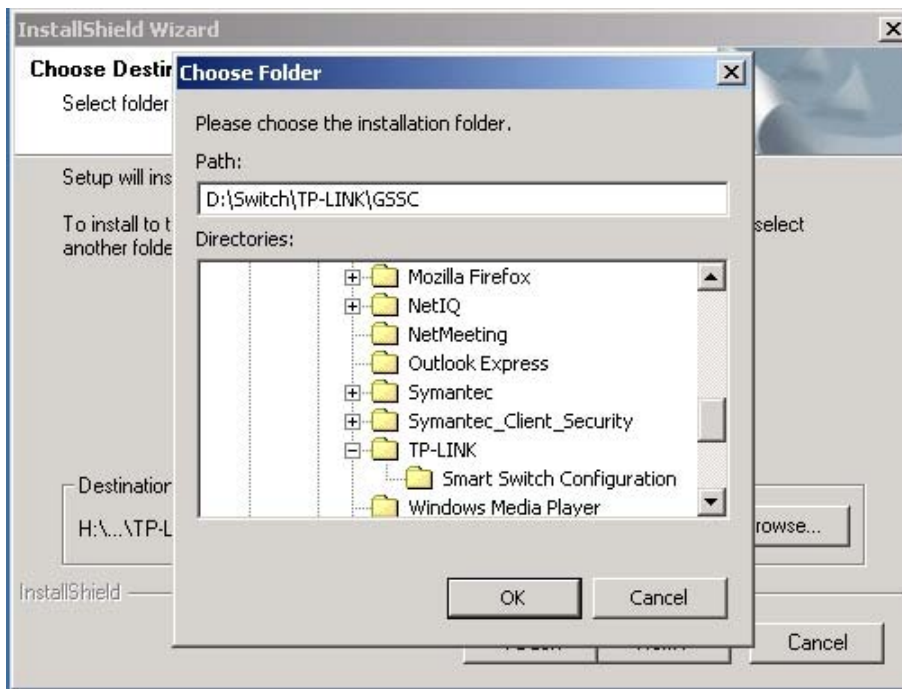


Fig 4.2 Inputting new path

5. After Click Next, the installation is finished.

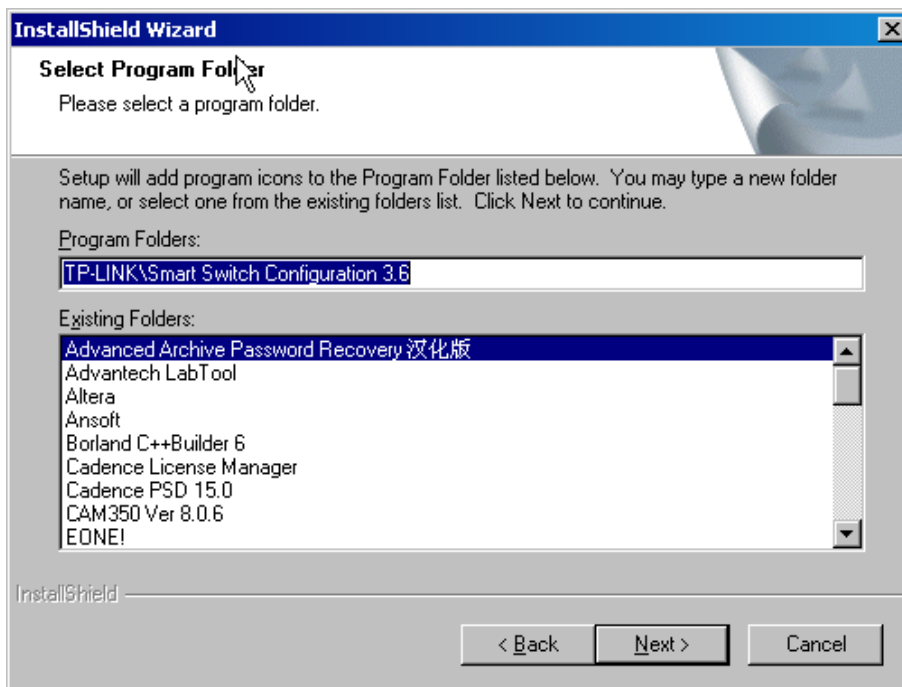


Fig 4.3 Finish changing new path

## 4.2 The Usage of GSSC

The interface of the software is friendly and easy to use. There are four steps on configuration the switch generally:

1. Connect;
2. Open the existed configuration file or configure the switch directly;
3. Write in the result;
4. Exit.

Here are more details about how to use the GSSC software.

1. After finishing the installation, click Start – Programs – TP-LINK – Giga Smart Switch Configuration, the window interface will be displayed on the desktop.

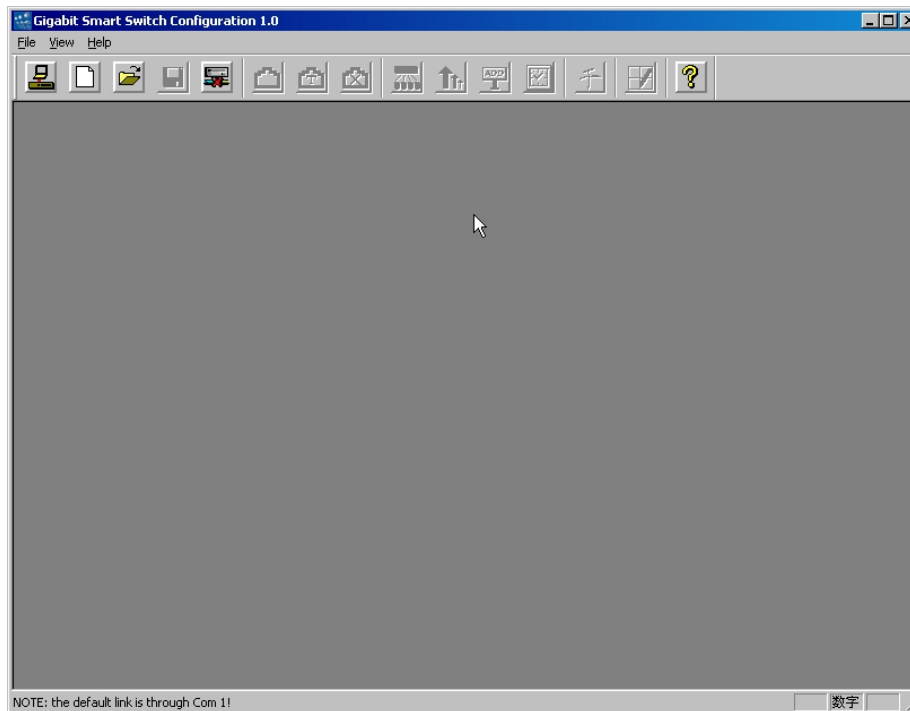


Fig 4.4 Initialized software interface

2. Turn on the switch, and select the File—Link to switch menu or click the **Link to Switch** button.

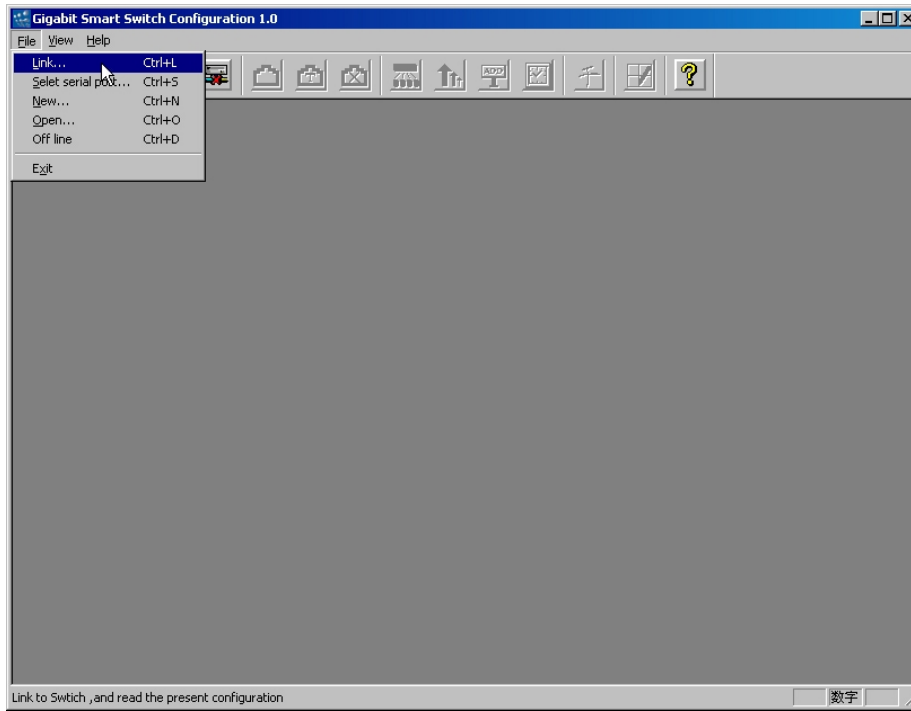


Fig 4.5 Pick up from the menu

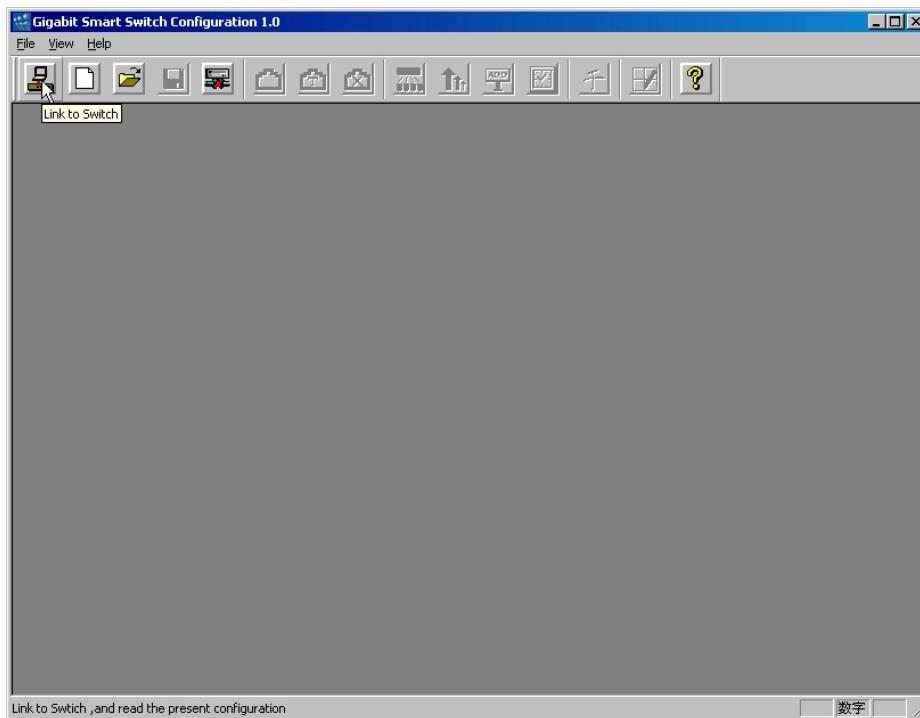


Fig 4.6 Pick up from the button

3. If the power supply is off or the serial cable is connected incorrectly, or something else, the program will display.

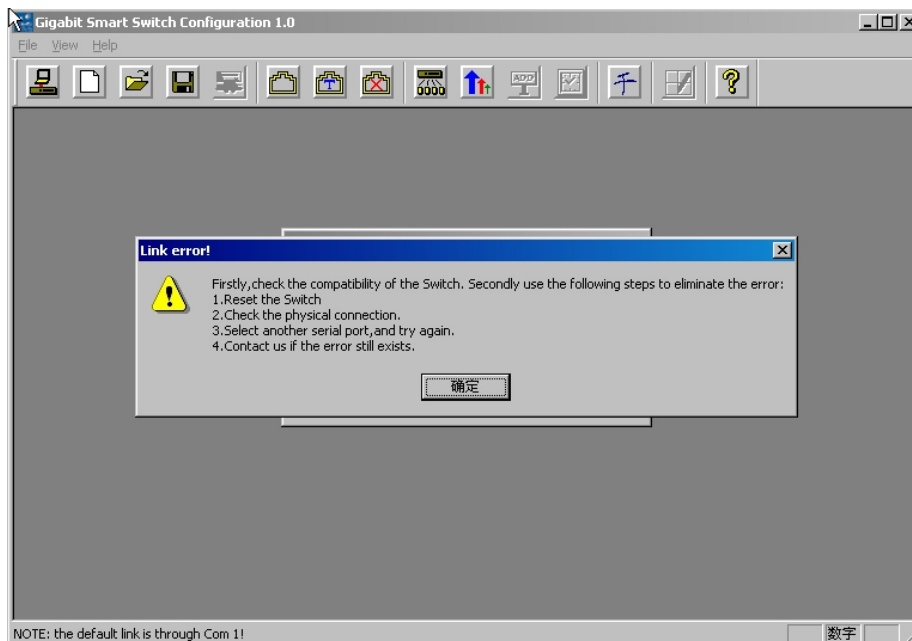


Fig 4.7 Connected at fault

4. After connecting successfully, the GSSC will read the configuration from the switch, and display the interface as Fig 4.8.

**Caution:** At this time the Off Line button is light. On the right of the button, there are eight buttons, Port Setting, TRUNK Setting, Port Close Setting, VLAN Setting, Priority Setting, Static MAC Address Setting, in turns.

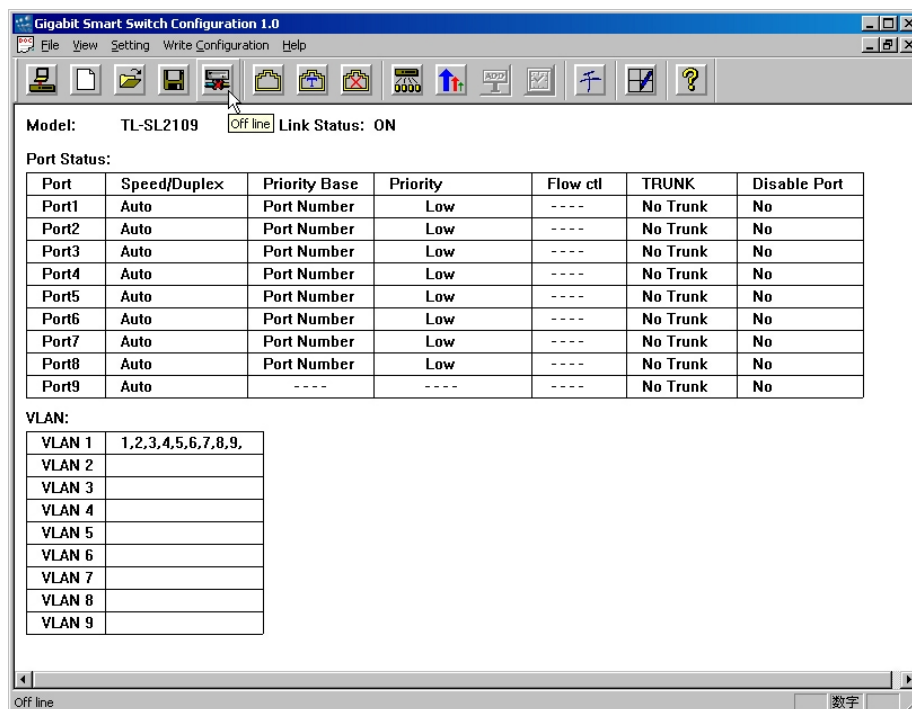


Fig 4.8 Connected successfully

5. Operate the configuration. When the PC connects to the switch successfully. You can configure the switch in terms of your requirement. You must click the write to switch button lastly, the switch will reset automatically after success in



configuration.

Click the setting menu, the software will display all functional buttons you can operate. The corresponding button will be light at the same time.

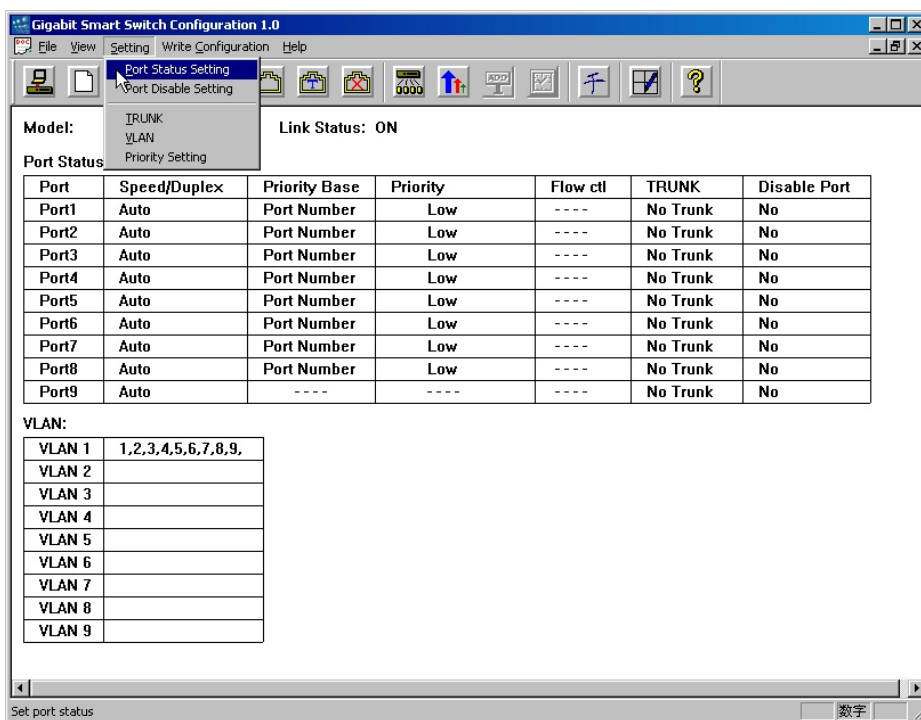


Fig 4.9 All the functional menu

### 4.3 Port Configuration

1. Select the **Port Status Setting** or click the **Port Setting** button.

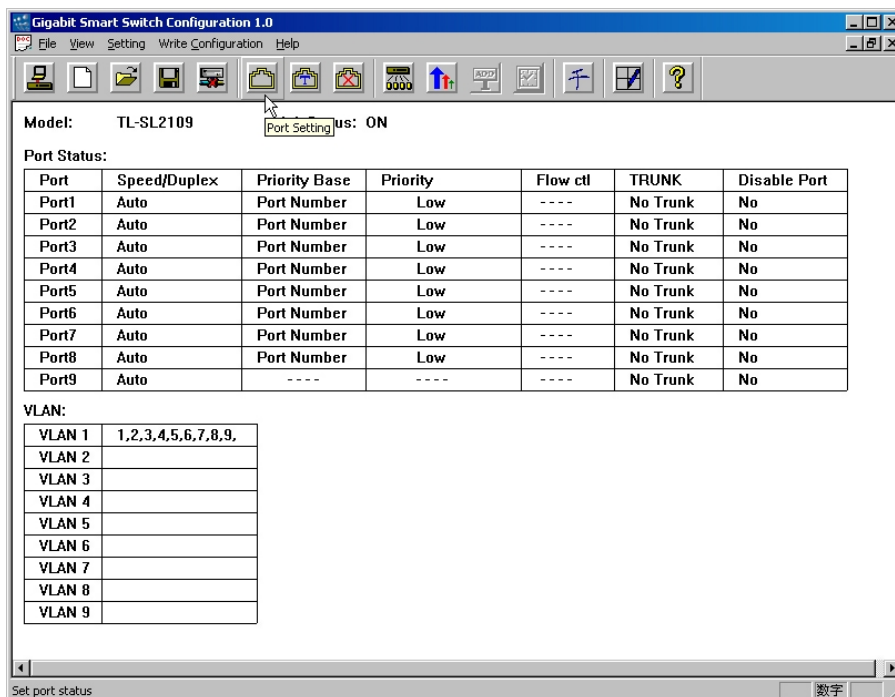


Fig 4.10 Configuring the Port Status

- Every port of the Switch can be configured by the software, as fig 4.11, but you can not operate the dark button.

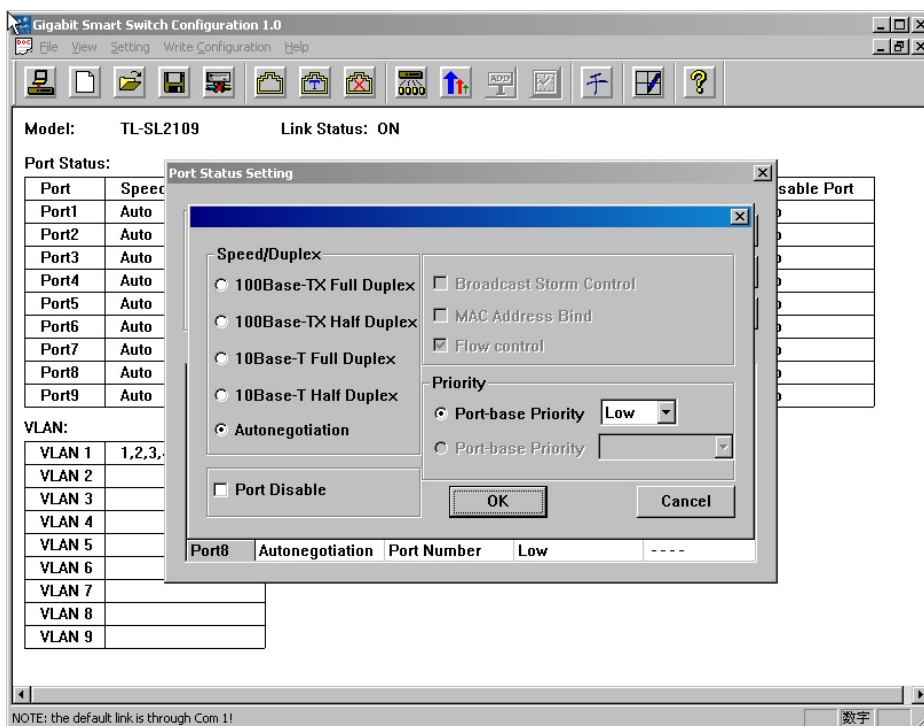


Fig 4.11 Configuring the Port Status

There are a few descriptions as follows:

**Speed/Duplex:** You can select Auto Negotiation or Force Mode, 100Mbps Full Duplex, 100Mbps Half Duplex, 10Mbps Full Duplex, 10Mbps Half Duplex. If you select the Half Duplex, the port can transfer or receive the packages. But the port can transfer and receive the packages at the same time of you select the Full Duplex.

If the Auto Negotiation is enabled, the port can select the favoured speed and duplex by terms of the port connected up far end.

**Default Setting:** Auto Negotiation

**Priority:** The priority, is an advanced feature of the switch, makes the important information transferred firstly come to true. The port-based priority is that you can configure the priority by terms of the port you selected. The tag-based priority is that the switch extracts the VLAN tag or the ToS tag from the packages, then make sure the packages' priority. The switch can only use the port-based priority. It divides two levels — Low and High.

**Default Setting:** Port Number (Low)

## 4.4 PortClose Setting

The **PortClose Setting** can close the port(s). It (They) can not transfer or receive the packages. The port (1-8) and the gigabit port configure in the different place in the software.

**Default Setting:** Open

1. There are two ways to configure the port (1-8)

Method one:

- 1) Select the PortClose Setting menu or click the PortClose Setting button.

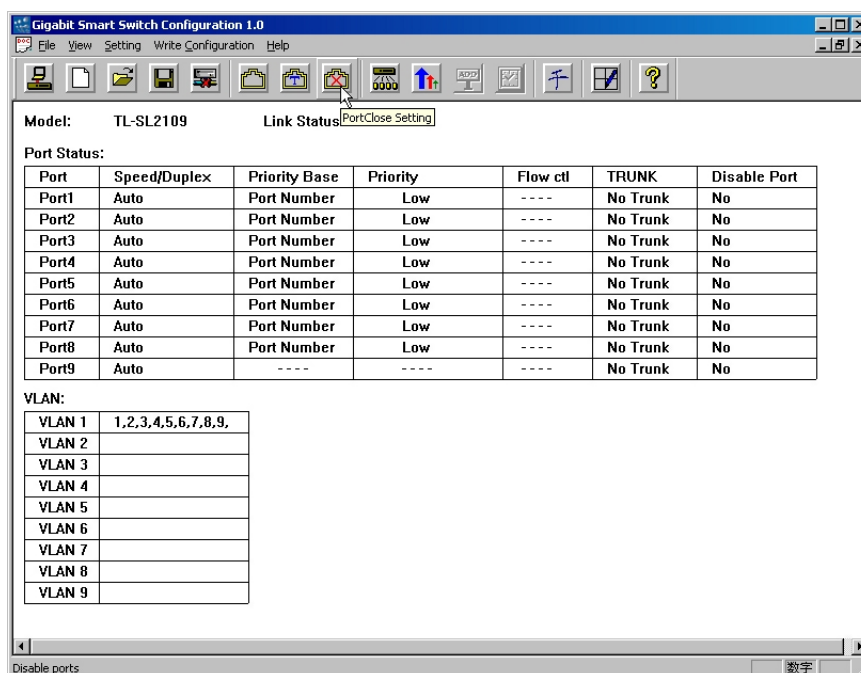


Fig 4.12 Select Port (1-8) Close Setting

- 2) Click the port(s) you want to change.

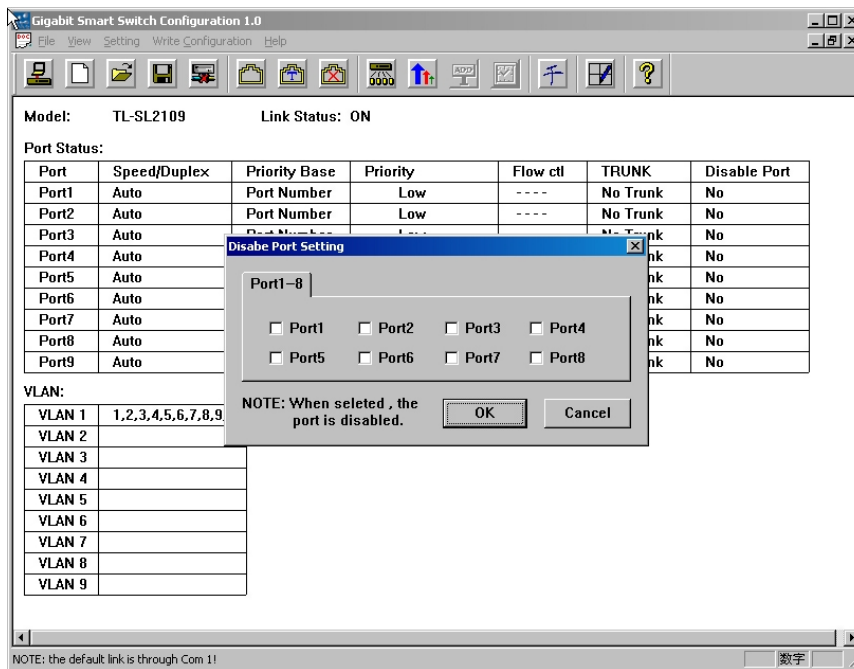


Fig 4.13 Port (1-8) Close Setting

Method two:

Select the corresponding port in the Port Setting, and click the Port Disable.

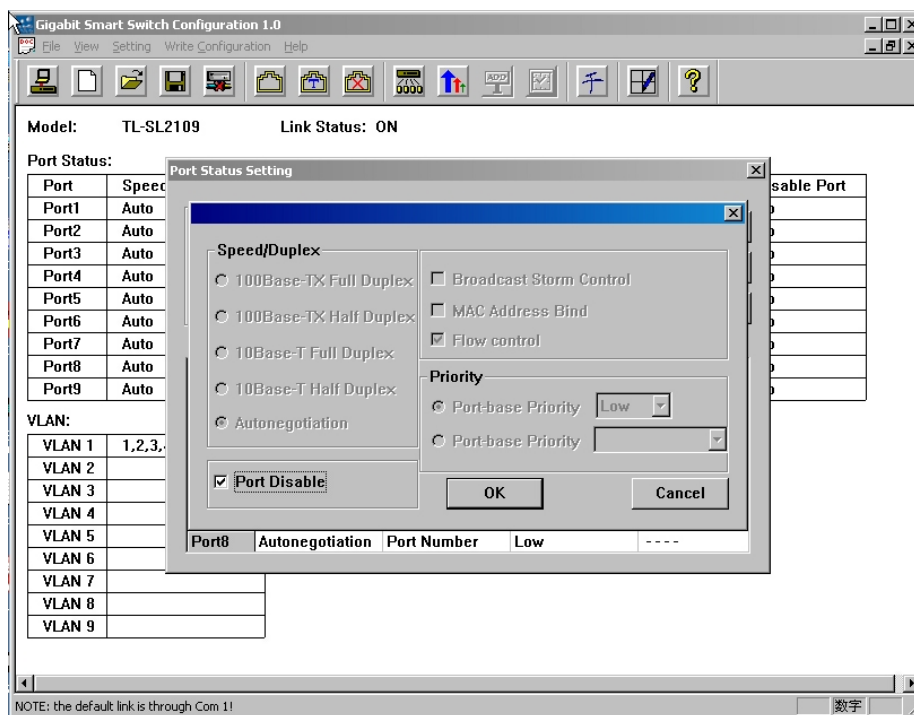


Fig 4.14 Port(s) (1-8) Close Setting 2

2. If you want to close the gigabit port, operate as follows:

- 1) Click the Giga Port Setting button.

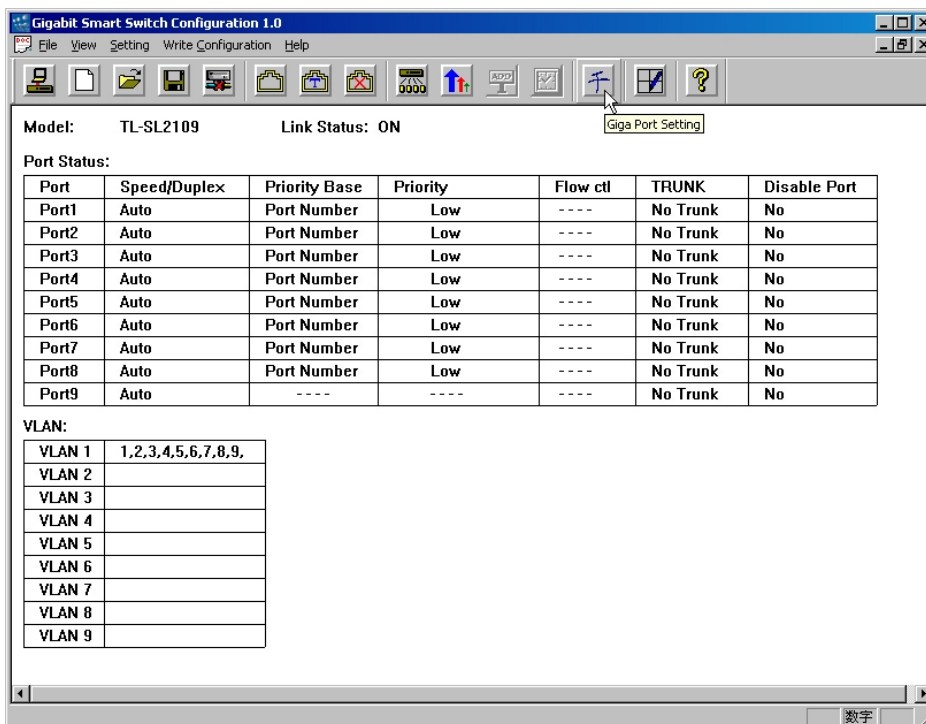


Fig 4.15 Select Giga Port Setting

2) Then click the Disable Giga Port 9.

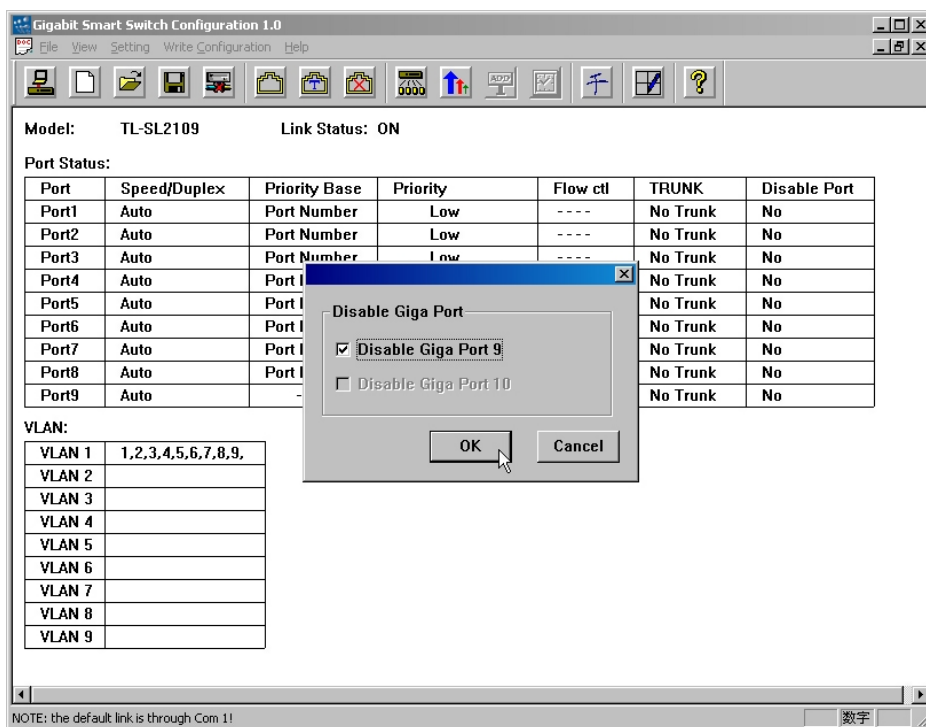


Fig 4.16 Giga Port configuration

## 4.5 TRUNK Setting

TRUNK can combine some ports to a logical port, and transmit data through it. It is very

useful to resolve the network traffic. The Switch looks a TRUNK as a big port regardless of its composition.

**Default Setting:** NO

1. Select the TRUNK menu or click the **TRUNK Setting** button.

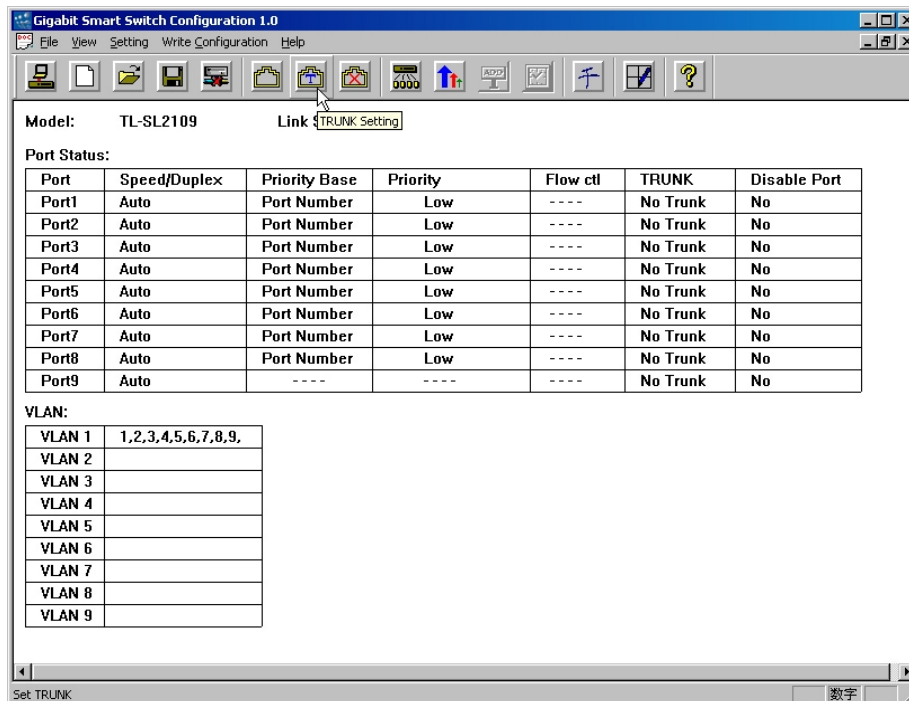


Fig 4.17 Select the Port TRUNK

2. Then click the port(s) that can be selected.

**Caution:** When TRUNK is enabled, the switch will change all the ports in the TRUNK to 100M Full Duplex.

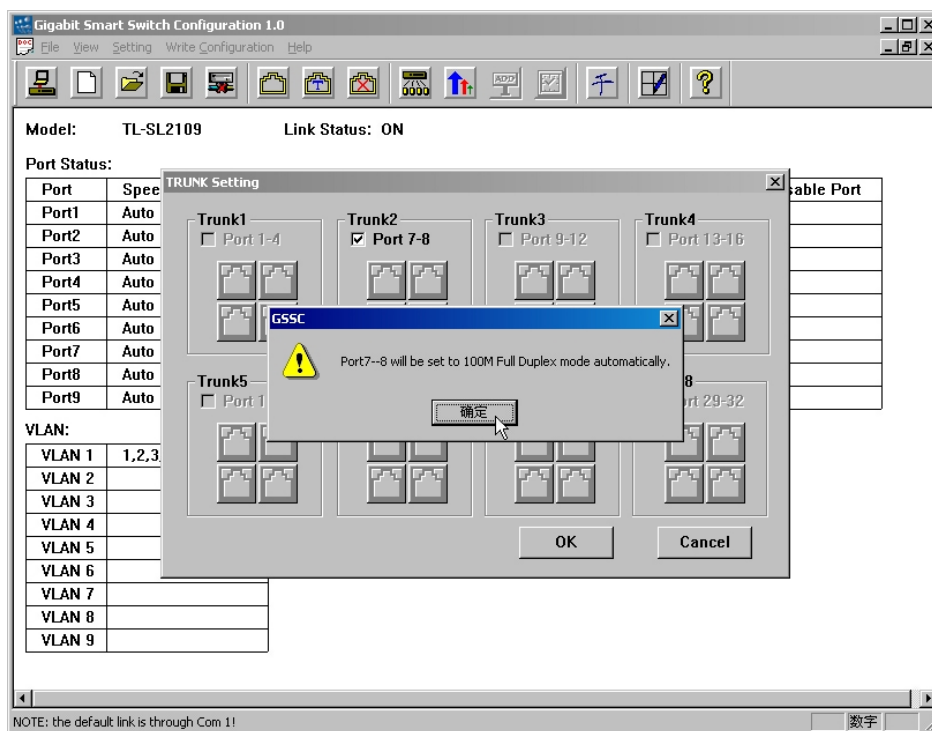


Fig 4.18 Port TRUNK Setting

### 4.6 VLAN

VLAN (Virtual Local Area Network) is a group domain composed of many terms. It can build a logical group without changing the physical connection. It is very easy and useful.

Default Setting: All ports in VLAN 1.

1. Select the VLAN Setting menu or click the VLAN Setting button.

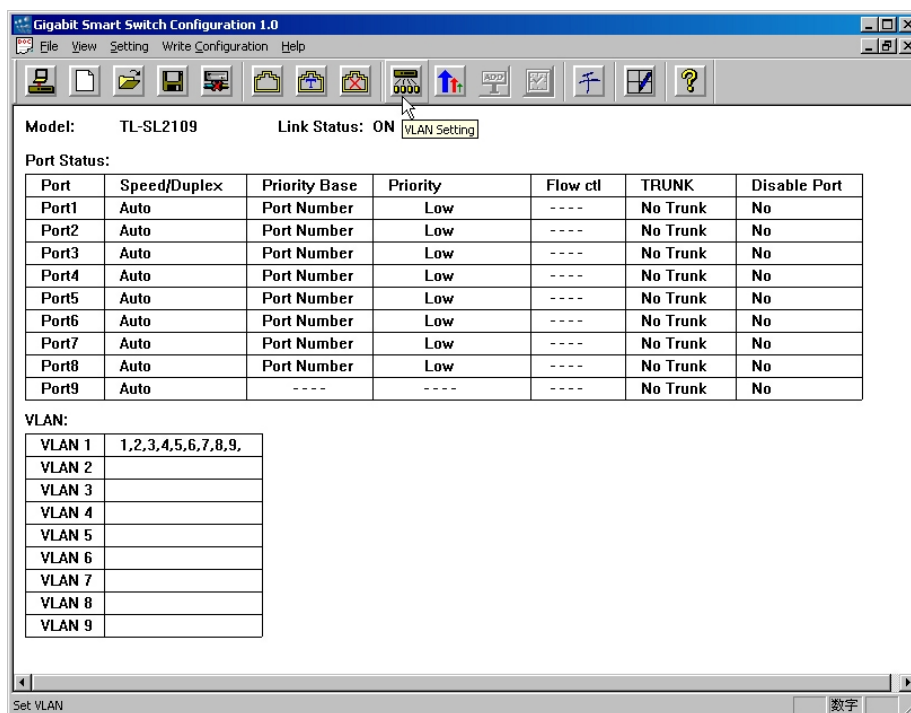


Fig 4.19 Select VLAN Setting

2. Then move the cursor to a VLAN group, click the port(s) you want to put in, such as P2, P3, P4, P5.

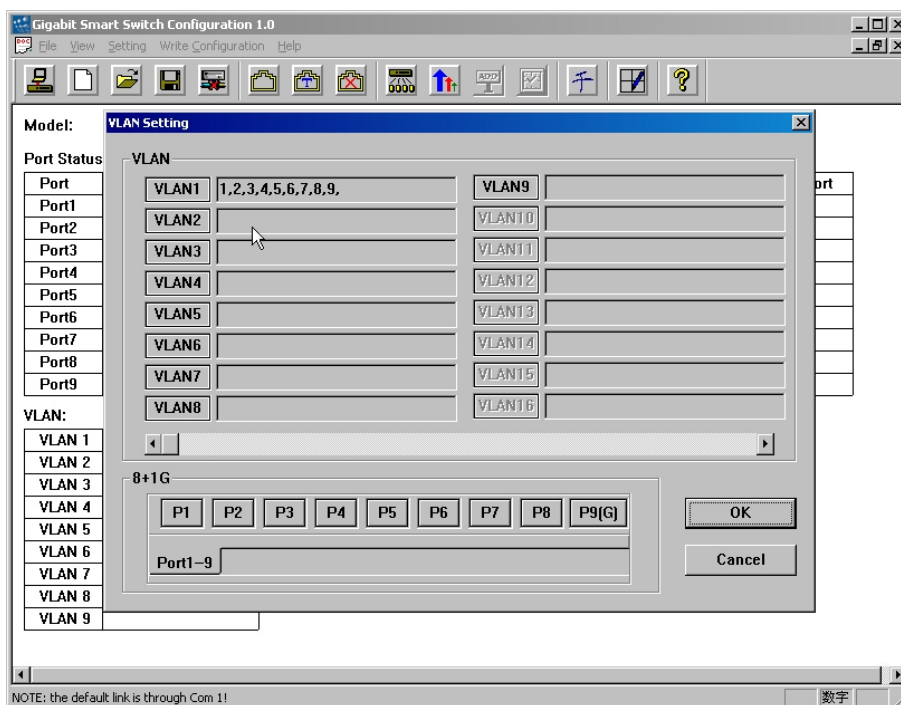


Fig 20 VLAN groups

**Caution:** VLANs can have the same port(s), and a VLAN can have only one port, the port can not transmit data with the others.

3. The Port(s) you selected is(are) in the same VLAN, you can delete or add the port(s) from the VLAN, just click the port(s) once again.

**Caution:** When a workstation moves from a VLAN to another VLAN the administrator should reassign the member of the VLAN. When the TRUNK is enabled, the switch requires all the ports, for the TRUNK are in the same VLAN.

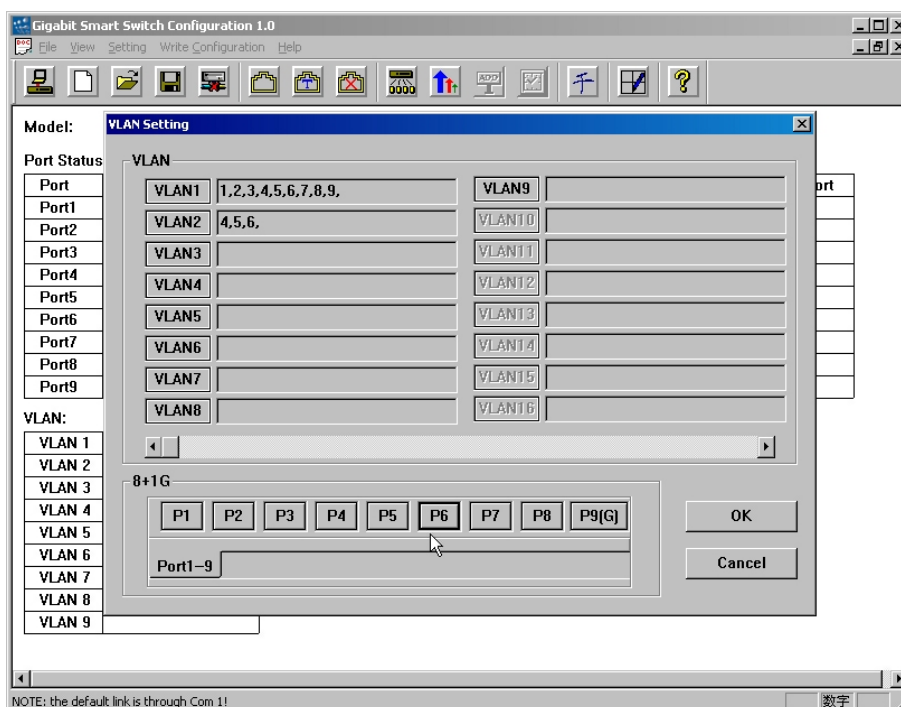




Fig 4.21 VLAN group's member changing

### 4.7 Priority over ToS and VLAN Tag

1. Select the Priority Setting or click the Priority over ToS and VLAN.

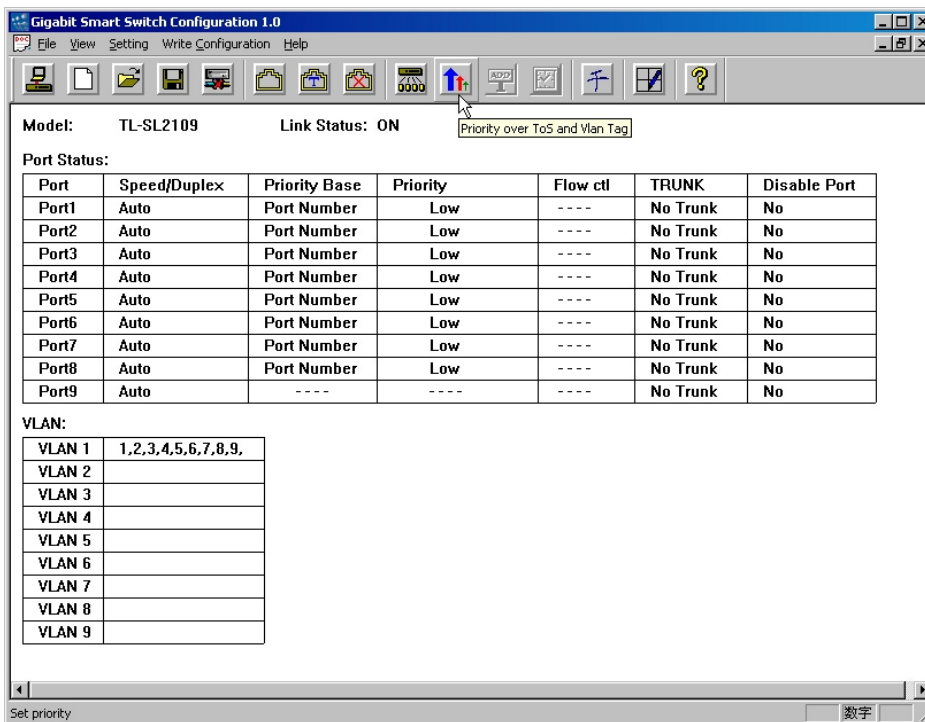


Fig 4.22 Select Priority Setting

2. The Priority is divided to three categories: Port-based priority, VLAN Tag based priority and ToS tag based priority. The switch support port based priority only. It divided into two levels: Low and High. The power of the transmitting between the low and the high has four scales, 1:1, 1:2, 1:3 and 1:4.

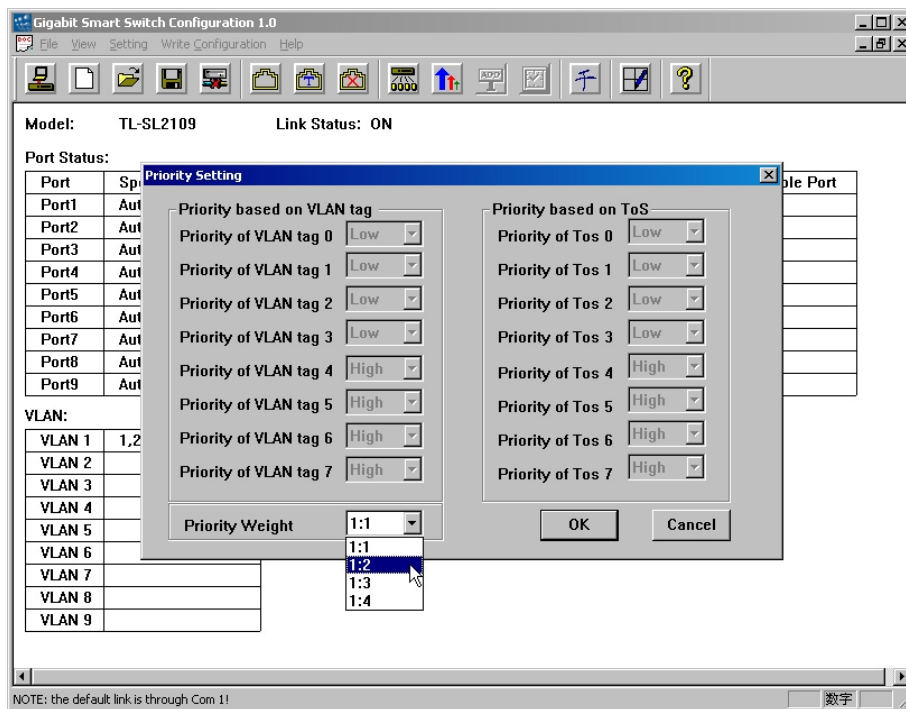


Fig 4.23 Priority Setting

### 4.8 The effect of the configuration

1. Carry out the current configuration. When finishing the all configuration you want to change. Click the **Write to Switch** button. The switch will reset to run the by terms of the result.

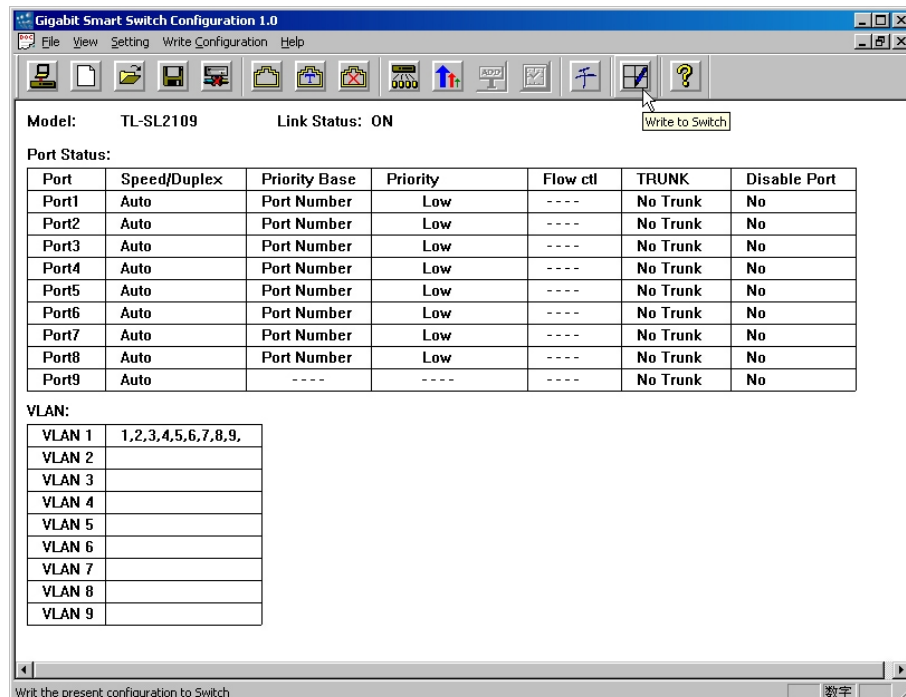


Fig 4.24 Write to Switch

2. Restore the factory default configuration. Select the Manufactory's configuration

menu, the default configuration will be stored to the switch, and the switch will reset.

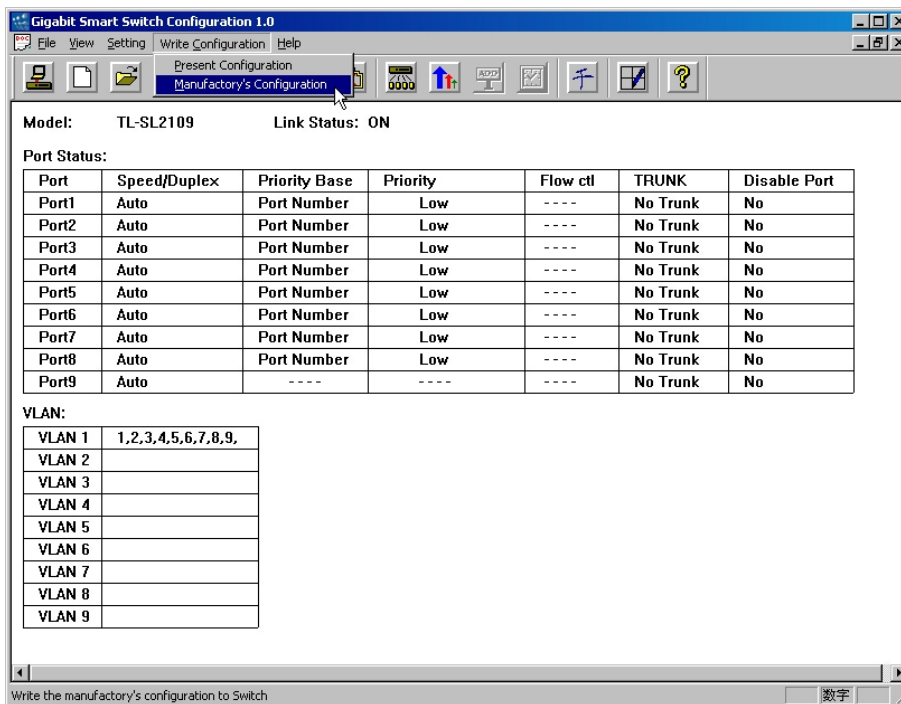


Fig 4.25 Restore default configuration

### 4.9 Save and Open the configuration

1. Save the file means that the software saves your current configuration to a file.

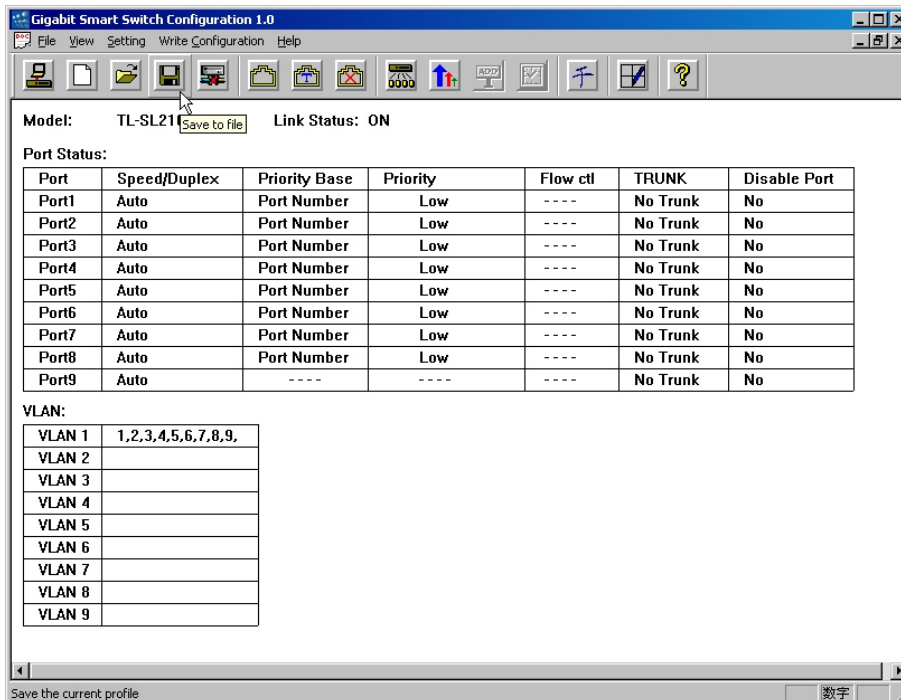


Fig 4.26 Save the configuration file

2. Open the file means that the software opens the configuration file which you built

up in the previous step.

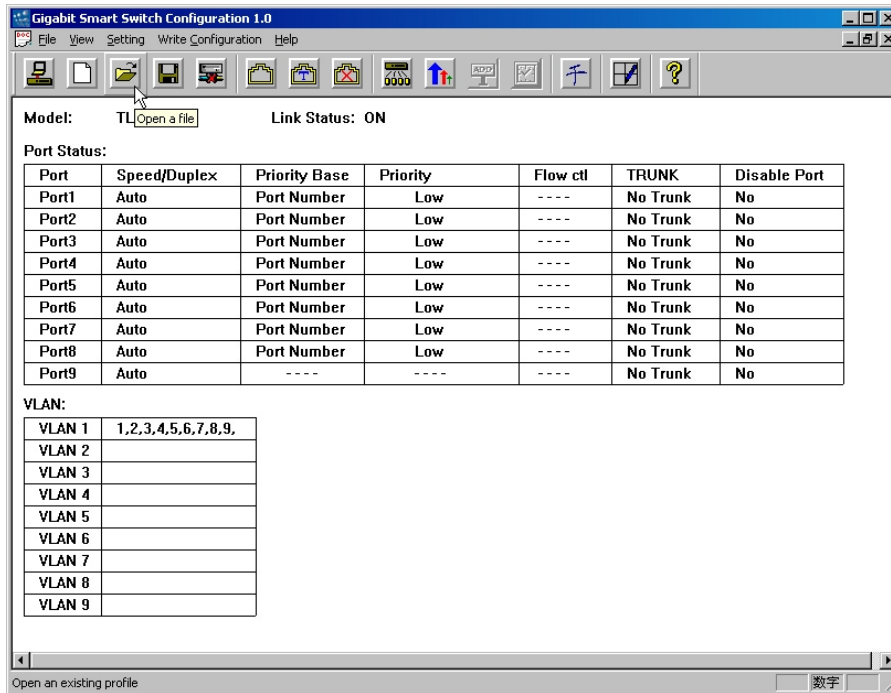


Fig 4.27 Open the configuration file

## Appendix A: Technical Specifications

<b>General</b>	
Standards	IEEE802.3 10BASE-T IEEE802.3u 100BASE-TX IEEE802.3ab 1000BASE-T IEEE 802.3x Flow Control
Topology	Star
Protocol	CSMA/CD
Data Transfer Rate	Ethernet: 10Mbps (Half Duplex), 20Mbps (Full Duplex); Fast Ethernet: 100Mbps (Half Duplex), 200Mbps (Full Duplex) Gigabit Ethernet: 1000Mbps (Half Duplex), 2000Mbps (Full Duplex)
Network Media (Cable)	10BASE-T: UTP category 3, 4, 5 cable (maximum 100m) EIA/TIA-568 100Ω STP (maximum 100m) 100BASE-TX: UTP category 5, 5e cable (maximum 100m) EIA/TIA-568 100Ω STP (maximum 100m) 1000BASE-TX: UTP category 5, 5e cable (maximum 100m) EIA/TIA-568 100Ω STP (maximum 100m)
Number of Ports	8 10/100Mbps Auto-Negotiation ports, 1 10/100/1000Mbps Auto-Negotiation port
LED indicators	Power, Link/Act, 100Mbps, 1000Mbps
Transfer Method	Store-and-Forward
MAC Address Learning	Automatically learning, automatically Update
Frame Filter Rate	10BASE-T: 14880pps/Port; 100BASE-TX: 148800pps/Port
Frame Forward Rate	10BASE-T: 14880pps/Port; 100BASE-TX: 148800pps/Port

<b>Environmental and Physical</b>	
Dimensions(W×D×H)	11.6×6.2×1.7in. (294×158×44mm )
Operating Temperature	0°C~40°C (32°F~104°F)
Storage Temperature	-40~70°C (-40°F~158°F)
Operating Humidity	10%~90% non-condensing
Storage humidity	5%~95% non-condensing

## **Appendix B: Contact Information**

For help with the installation or operation of the TP-LINK TL-SL2109 Smart Switch, please contact us.

**E-mail:** [support@tp-link.com](mailto:support@tp-link.com)

**Website:** <http://www.tp-link.com>